

Abstract

The communications characteristics are improved with a communications method for carrying out communications using a plurality of M signal points to be placed on an I-Q plane. When the M signal points are spaced on the I-Q plane around a point of origin to have a uniform space a in directions of an I-axis and a Q-axis, inside of a circle or inside of the circle covering over the circle having a radius of a space b between the point of origin and a point of the largest value in both directions of the I-axis and the Q-axis, the M signal points are placed in such a manner that a space between any two arbitrary signal points is equal to or larger than the uniform space a , and a space between at least a pair of signal points is larger than the uniform space a .